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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/731,983	12/10/2003	Tai-Chun Huang	67,200-1147	5837

7590 09/22/2005

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EXAMINER

ZARNEKE, DAVID A

ART UNIT PAPER NUMBER

2891

DATE MAILED: 09/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/731,983

Applicant(s)

HUANG ET AL.

Examiner

David A. Zarneke

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 5-8, 12, 16 and 20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 9-11, 13-15 and 17-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Applicant's election of Species 1, Figure 5, claims 1-4, 9-11, 13-15 and 17-19, in the reply filed on 7/7/05 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Alswede et al., US Patent 5,917,197.

Alswede (figures 3- 5) teaches a structure for reinforcing a bonding pad (402b) connected to at least one conductive layer (420a & 420d) on a substrate, comprising: at least one anchor structure (402 a, 402c & 402d) for connection to the bonding pad and to the at least one conductive layer (412).

Regarding claim 2, Alswede teaches the at least one anchor structure comprises a bonding pad anchor pad (402c) for connection to the bonding pad (402b), a conductive layer anchor pad (equivalent of 406 and 408 underneath 402c) for connection to the conductive layer, and at least one anchor via connecting said bonding pad anchor pad to said conductive layer anchor pad (412).

With respect to claim 3, Alswede teaches the at least one anchor structure comprises a plurality of anchor structures (402 a, 402c & 402d).

As to claim 4, Alswede teaches the plurality of anchor structures each comprises a bonding pad anchor pad for connection to the bonding pad, a conductive layer anchor pad for connection to the conductive layer, and at least one anchor via connecting said bonding pad anchor pad to said conductive layer anchor pad (the matrix of layers taught in figure 3).

Claims 13-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Alswede et al., US Patent 5,917,197.

Alswede (figures 3- 5) teaches a structure for reinforcing a bonding pad (402b) connected to a plurality of conductive layers (406: 202a & 202b) through a plurality of insulative layers (410: 304a & 304b) deposited on a substrate, comprising: at least one multi-level anchor structure for connection to the bonding pad and to the conductive layers, respectively (402a 402c & 402d).

Regarding claim 14, Alswede teaches the at least one anchor structure comprises a bonding pad anchor pad (402c) for connection to the bonding pad (402b), a plurality of conductive layer anchor pad (equivalent of 406 and 408 underneath 402c)

for connection to the conductive layers, respectively, at least one anchor via connecting each of said conductive layer anchor anchor pads to an adjacent one of said conductive layer anchor pads, respectively (412).

With respect to claim 15, Alswede teaches the at least one anchor structure comprises a plurality of anchor structures (402 a, 402c & 402d).

Claims 18 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Alswede et al., US Patent 5,917,197.

Alswede teaches a method of reinforcing a bonding pad connected through conductive vias to a plurality of conductive layers deposited on a substrate, comprising the step of: connecting at least one multi-level anchor structure (402a, 402c, 402d) to the bonding pad (402b) and to the conductive layers (figure 3), respectively.

Regarding claim 19, Alswede teaches the at least one anchor structure comprises a plurality of anchor structures (402 a, 402c & 402d).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alswede et al., US Patent 5,917,197, as applied to claim 1.

Regarding claim 9, Alswede fails to specifically teach the at least one anchor structure lies outside an imaginary crack zone circle circumscribing said bonding pad.

Alswede teaches the crack stop etch step may etch some of the peripheral pads (6, 18+), therefore one could assume that at least one anchor structure is, or at least could be, outside the imaginary crack zone circle.

With respect to claim 10, Alswede teaches the at least one anchor structure comprises a bonding pad anchor pad (402c) for connection to the bonding pad (402b), a conductive layer anchor pad (equivalent of 406 and 408 underneath 402c) for

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connection to the conductive layer, and at least one anchor via connecting said bonding pad anchor pad to said conductive layer anchor pad (412).

As to claim 11, Alswede teaches the at least one anchor structure comprises a plurality of anchor structures (402 a, 402c & 402d).

Claims 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alswede et al., US Patent 5,917,197, as applied to claim 13.

Regarding claim 17, Alswede fails to specifically teach the at least one anchor structure lies outside an imaginary crack zone circle circumscribing said bonding pad.

Alswede teaches the crack stop etch step may etch some of the peripheral pads (6, 18+), therefore one could assume that at least one anchor structure is, or at least could be, outside the imaginary crack zone circle.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art cited but not relied upon teach the state of the art.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A. Zarneke whose telephone number is (571)-272-1937. The examiner can normally be reached on M-Th 7:30 AM-6 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Baumeister can be reached on (571)-272-1722. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



David A. Zarneke
Primary Examiner
September 18, 2005